

1959

$\phi = 45.7^\circ$ R
 $T(^{\circ}\text{R}) = 1.8 \quad t(^{\circ}\text{C}) + 273.16^{\circ}\text{C}$
 $V(\text{FT./SEC.}) = 1.6889 \times V(\text{KNOTS})$

CONDENSED TABLE OF ATMOSPHERIC
 PROPERTIES FOR THE 1959 ARDC MODEL ATMOSPHERE
 (REF. AFRCR-TR-59-267 AFSIG NO. 115)

NOTE

Z = HEIGHT ABOVE MEAN S.L.
 H = GEOPOTENTIAL FT. BASED
 ON $g_0 = 32.174$

Altitude		Pressure		Density			Temperature		Speed Of Sound	q/M ²	Mean Free Path	Altitude
Z ft.	H ft.	P lb/ft ²	P/P ₀	ρ slugs/ft ³	ρ/ρ ₀	√σ	T °R	T/T ₀				
0	0	2.1162 ³	1.0000 ⁰	2.3769 ⁻³	1.0000 ⁰	1.0000 ⁰	518.69	1.0000 ⁰	661.01	1.4812 ³	2.1758 ⁻⁷	0
5000	4999	1.7609	8.3210 ⁻¹	2.0482	8.6171 ⁻¹	9.2828 ⁻¹	500.86	9.6562 ⁻¹	649.58	1.2325	2.5250	5000
10000	9995	1.4556	6.8784	1.7556	7.3861	8.5942	483.04	9.3127	637.92	1.0188	2.9458	10000
15000	14989	1.1948	5.6460	1.4962	6.2948	7.9340	465.23	8.9693	626.08	8.3629 ²	3.4566	15000
20000	19981	9.7327 ²	4.5991	1.2673	5.3317	7.3018	447.43	8.6262	613.94	6.8122	4.0809	20000
25000	24970	7.8633	3.7158	1.0663	4.4861	6.6978	429.64	8.2832	601.62	5.5038	4.8503	25000
30000	29957	6.2966	2.9754	8.9068 ⁻⁴	3.7472	6.1214	411.86	7.9404	589.04	4.4072	5.8064	30000
35000	34941	4.9934	2.3596	7.3820	3.1057	5.5729	394.08	7.5976	576.19	3.4950	7.0057	35000
36152	36089	4.7268	2.2336	7.0611	2.9707	5.4504	389.99	7.5187	573.19	3.3086	7.3316	36152
40000	39923	3.9312	1.8577	5.8727	2.4707	4.9706	389.99	7.5187	573.19	2.7516	8.8062	40000
45000	44903	3.0945	1.4623	4.6227	1.9448	4.4100	389.99	7.5187	573.19	2.1660	1.1187 ⁻⁶	45000
50000	49880	2.4361	1.1512	3.6391	1.5310	3.9128	389.99	7.5187	573.19	1.7052	1.4211	50000
55000	54855	1.9180	9.0634 ⁻²	2.8652	1.2054	3.4719	389.99	7.5187	573.19	1.3425	1.8050	55000
60000	59828	1.5103	7.1368 ⁻²	2.2561	9.4918 ⁻²	3.0809	389.99	7.5187	573.19	1.0571	2.2923	60000
65000	64798	1.1893	5.6200	1.7767	7.4749	2.7340	389.99	7.5187	573.19	8.3243 ¹	2.9108	65000
70000	69766	9.3672 ¹	4.4264	1.3993	5.8871	2.4263	389.99	7.5187	573.19	6.5564	3.6958	70000
75000	74731	7.3784	3.4866	1.1022	4.6371	2.1534	389.99	7.5187	573.19	5.1644	4.6920	75000
80000	79694	5.8125	2.7467	8.6831 ⁻⁵	3.6531	1.9113	389.99	7.5187	573.19	4.0684	5.9560	80000
82345	82021	5.1975	2.4561	7.7644	3.2666	1.8074	389.99	7.5187	573.19	3.6383	6.6611	82345
85000	84655	4.5827	2.1655	6.7706	2.8485	1.6877	394.32	7.6022	576.36	3.2075	7.6383	85000
90000	89613	3.6292	1.7150	5.2531	2.2101	1.4866	402.48	7.7595	582.30	2.5403	9.8449	90000
95000	94569	2.8878	1.3646	4.0970	1.7237	1.3129	410.64	7.9169	588.17	2.0212	1.2623 ⁻⁵	95000
100000	99523	2.3085	1.0909	3.2114	1.3511	1.1624	418.79	8.0740	593.98	1.6158	1.6104	100000
110000	109423	1.4947	7.0631 ⁻³	2.0014	8.4202 ⁻³	9.1762 ⁻²	435.09	8.3882	605.41	1.0462	2.5840	110000
120000	119313	9.8372 ⁰	4.6485	1.2697	5.3418	7.3088	451.37	8.7021	616.66	6.8854 ⁰	4.0731	120000
130000	129195	6.5735	3.1063	8.1894 ⁻⁶	3.4454	5.8698	467.63	9.0156	627.67	4.6011	6.3150	130000
140000	139066	4.4552	2.1053	5.3640	2.2567	4.7505	483.88	9.3289	638.45	3.1184	9.6413 ⁻⁴	140000
150000	148929	3.0597	1.4458	3.5642	1.4995	3.8723	500.11	9.6418	649.11	2.1415	1.4510	150000
155348	154199	2.5155	1.1887	2.8803	1.2118	3.4809	508.79	9.8091	654.67	1.7608	1.7915	155348
160000	158782	2.1247	1.0040	2.4329	1.0236	3.1994	508.79	9.8091	654.67	1.4871	2.1257	160000
170000	168625	1.4784	6.9861 ⁻⁴	1.6929	7.1223 ⁻⁴	2.6688	508.79	9.8091	654.67	1.0348	3.0549	170000
175243	173783	1.2227	5.7778	1.4011	5.8947	2.4279	508.79	9.8091	654.67	8.5581 ⁻¹	3.6918	175243
180000	178460	1.0272	4.8540	1.2028	5.0604	2.2495	497.49	9.5913	647.39	7.1897	4.2995	180000
190000	188285	7.0278 ⁻¹	3.3210	8.6517 ⁻⁷	3.6399	1.9079	473.24	9.1238	631.40	4.9191	5.9776	190000
200000	198100	4.7151	2.2281	6.1180	2.5739	1.6043	449.00	8.6564	615.00	3.3003	8.4532	200000
210000	207906	3.0955	1.4628	4.2454	1.7861	1.3365	424.79	8.1897	598.19	2.1667	1.2182 ⁻³	210000
220000	217703	1.9835	9.3729 ⁻⁵	2.8845	1.2136	1.1016	400.60	7.7233	580.94	1.3883	1.7929	220000
230000	227491	1.2368	5.8444	1.9141	8.0529 ⁻⁵	8.9738 ⁻³	376.44	7.2575	563.14	8.6567 ⁻²	2.7019	230000
240000	237269	7.4774 ⁻²	3.5334	1.2365	5.2022	7.2126	352.30	6.7921	544.79	5.2337	4.1824	240000
250000	247039	4.3640	2.0622	7.7480 ⁻⁸	3.2597	5.7094	328.20	6.3275	525.84	3.0545	6.6750	250000
260000	256798	2.4460	1.1558	4.6860	1.9715	4.4402	304.10	5.8628	506.12	1.7120	1.1040 ⁻²	260000
262458	259196	2.1080	9.9613 ⁻⁶	4.1100	1.7291	4.1582	298.20	5.7491	501.20	1.4755	1.2594	262458
270000	266549	1.3270	6.2707	2.5930	1.0909	3.3029	298.20	5.7491	501.20	9.2882	1.9950	270000
280000	276290	7.1940 ⁻³	3.3995	1.4060	5.9153 ⁻⁶	2.4321	298.20	5.7491	501.20	5.0353 ⁻³	3.6790	280000
290000	286020	3.9020	1.8139	7.6240 ⁻⁹	3.2075	1.7909	298.20	5.7491	501.20	2.7312	6.7840	290000
299238	295005	2.2190	1.0486	4.3330	1.8230	1.3502	298.20	5.7491	501.20	1.5532	1.1945 ⁻¹	299238
300000	295746	2.1180	1.0009	4.1230	1.7346	1.3170	299.20	5.7684	501.20	1.4825	1.2540	300000
325000	320013	5.2350 ⁻⁴	2.4738 ⁻⁷	8.6560 ⁻¹⁰	3.6117 ⁻⁷	6.0346 ⁻⁴	351.80	6.7825	576.82	3.6612 ⁻⁴	5.9825	325000
350000	344223	1.5760	7.4480 ⁻⁸	2.2630	9.5208 ⁻⁸	3.0856	403.90	7.7869	603.90	1.1032	2.2760 ⁰	350000
351050	345240	1.5070	7.1213	2.1150	8.8981	2.9830	412.50	7.9527	612.50	1.0548	2.4456	351050
375000	368376	6.6530 ⁻⁵	3.1438	5.8035 ⁻¹¹	2.4416	1.5626	463.85	1.2799 ⁰	663.85	4.6566 ⁻⁵	8.8665	375000
400000	392472	3.7620	1.7777	2.3500	9.8868 ⁻⁹	9.9432 ⁻⁵	523.90	1.7812	723.90	2.6331	2.1800 ⁺¹	400000
425000	416512	2.4590	1.1620	1.1975	5.0381	7.0980	418.15	2.2779	618.15	1.7212	4.2665	425000
450000	440495	1.7510	8.2743 ⁻⁹	6.9870 ⁻¹²	2.9395	5.4217	443.60	2.7685	627.65	1.2256	7.2810	450000
475000	464422	1.3200	6.2376	4.4650	1.8785	4.3342	418.70	3.2524	582.70	9.2391 ⁻⁶	1.1345 ⁺²	475000
500000	488292	1.0360	4.8956	3.0430	1.2802	3.5780	393.00	3.7266	543.00	7.2514	1.6560	500000
550000	535867	6.9460 ⁻⁶	3.2823	1.6540	6.9586 ⁻¹⁰	2.6379	235.00	4.5306	483.00	4.8617	3.0040	550000
600000	583219	4.9080	2.3193	1.0850	4.5648	2.1365	247.80	4.7774	447.80	3.4353	4.4820	600000
650000	630352	3.5380	1.6719	7.4550 ⁻¹³	3.1364	1.7710	252.00	4.8622	417.00	2.4761	6.3280	650000
700000	677265	2.5920	1.2248	5.2490	2.2083	1.4860	254.50	4.9066	406.00	1.8142	8.7150	700000
750000	723962	1.9210	9.0776 ⁻¹⁰	3.7730	1.5874	1.2599	254.60	4.9085	394.60	1.3446	1.1770 ⁺³	750000
800000	770442	1.4380	6.7952	2.7420	1.1536	1.0741	254.70	4.9104	391.04	1.0065	1.5720	800000
850000	816709	1.0870	5.1366	2.0140	8.4732 ⁻¹¹	9.2050 ⁻⁶	254.80	4.9124	388.24	7.6083 ⁻⁷	2.0810	850000
900000	862762	8.2940 ⁻⁷	3.9193	1.4950	6.2897	7.9308	255.10	4.9182	385.10	5.8053	2.7310	900000
950000	908605	6.3810	3.0153	1.1190	4.7078	6						